



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,436	09/11/2003	Toshiyuki Nomura	Q77464	4091
23373	7590	08/23/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			HANNAHER, CONSTANTINE	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/659,436	NOMURA ET AL.	
	Examiner	Art Unit	
	Constantine Hannaher	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-10 is/are rejected.
- 7) ☒ Claim(s) 2-5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20030911, 20040604</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS 20040709</u> . |

DETAILED ACTION

Election/Restrictions

1. The Examiner notes that the European Patent Office considered the application to recite distinct species but makes no requirement at this time.

Information Disclosure Statement

2. As set forth in MPEP § 609:

37 CFR 1.98(b) requires that each item of information in an IDS be identified properly. U.S. patents must be identified by the inventor, patent number, and issue date. U.S. patent application publications must be identified by the applicant, patent application publication number, and publication date. U.S. applications must be identified by the inventor, the eight digit application number (the two digit series code and the six digit serial number), and the filing date. If a U.S. application being listed in an IDS has been issued as a patent, the applicant should list the patent in the IDS instead of the application. Each foreign patent or published foreign patent application must be identified by the country or patent office which issued the patent or published the application, an appropriate document number, and the publication date indicated on the patent or published application. Each publication must be identified by publisher, author (if any), title, relevant pages of the publication, date and place of publication. The date of publication supplied must include at least the month and year of publication, except that the year of publication (without the month) will be accepted if the applicant points out in the information disclosure statement that the year of publication is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the particular month of publication is not in issue. The place of publication refers to the name of the journal, magazine, or other publication in which the information being submitted was published.

No date of publication is supplied for the Small publication. The Examiner further notes that the statement offered in the information disclosure statement submitted July 9, 2004 is improperly worded, compare with the information disclosure statement submitted June 4, 2004. The information disclosure statement submitted upon filing, while properly listing a patent application publication, may not refer to the expected publication.

Drawings

3. The drawings were received on June 4, 2004. These drawings are acceptable.

4. The drawings are objected to because Figs. 8-10 include the marking REFEGERANT. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: page 5, line 22 and page 50, line 8 appear to refer to a view improperly.

Appropriate correction is required.

6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

7. Claim 1 is objected to because of the following informalities: this claim lacks a number.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson *et al.* (US005610398A) in view of Adachi *et al.* (US005351198A).

With respect to independent claim 1, Anderson *et al.* discloses a multi-component analyzing apparatus 10 (Fig. 1) of the recited type in view of the infrared light from source 26, the measuring-subject sample 14 in cell 20 (where refrigerant is constituted as recited, column 2, lines 40-42), the plurality of detectors 30 and corresponding filters 32, and the calculation processing unit 38 (column 3, line 49 to column 4, line 45). Anderson *et al.* recognizes cross-sensitivity of the respective refrigerant gases for each detector (column 10, lines 17-20) and the unit 38 executes

analytical operations (*e.g.*, Fig. 12) but no equations are set forth. Adachi *et al.* discloses a multi-component analyzing apparatus 21 (Fig. 1) comprising an infrared light source 4, sample cell 9, and detector 10 in which a calculation processing unit 3 executes an analyzing process program for executing analysis operations of the concentration of respective measuring-subject components (column 2, lines 15-17) by solving simultaneous equations (Eq. 17) constituted with mutual interference correction terms (column 10, lines 20-30) used to correct the adverse influences of interference among the respective measuring-subject components (column 9, lines 48-52 and 60-68, and column 10, lines 1-6). In view of the improved compensation for the interferences between components described by Adachi *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Anderson *et al.* to provide that the calculation processing unit was capable of executing an analyzing process program of the type suggested by Adachi *et al.* using the output of detectors 30 as the input constituent spectra from wavenumber bands specified by filters 32.

With respect to independent claim 6, Anderson *et al.* discloses a mixed-refrigerant analyzing apparatus 10 (Fig. 1) comprising a cell 20 to which a mixed refrigerant 14 containing a plurality of refrigerant components (column 2, lines 40-42) is supplied as a sample gas, an infrared light source 26, a plurality of bandpass filters 32 of the recited type (column 4, lines 23-31), a plurality of detectors 30, and a calculation processing unit 38 (column 3, line 49 to column 4, line 45). Anderson *et al.* recognizes cross-sensitivity of the respective refrigerant gases for each detector (column 10, lines 17-20) and the unit 38 executes analytical operations (*e.g.*, Fig. 12) but no equations are set forth. Adachi *et al.* discloses a mixed-component analyzing apparatus 21 (Fig. 1) comprising an infrared light source 4, sample cell 9, and detector 10 in which a calculation processing unit 3 executes an analyzing process program for executing analysis operations of the concentration of

respective measuring-subject components (column 2, lines 15-17) by solving simultaneous equations (Eq. 17) constituted with mutual interference correction terms (column 10, lines 20-30) used to correct the adverse influences of interference among the respective measuring-subject components (column 9, lines 48-52 and 60-68, and column 10, lines 1-6). In view of the improved compensation for the interferences between components described by Adachi *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Anderson *et al.* to provide that the calculation processing unit was capable of executing an analyzing process program of the type suggested by Adachi *et al.* using the output of detectors 30 as the input constituent spectra from wavenumber bands specified by filters 32.

With respect to independent claims 7-10, Anderson *et al.* discloses a mixed-refrigerant analyzing apparatus 10 (Fig. 1) comprising a cell 20 to which a mixed refrigerant 14 containing a plurality of refrigerant components (column 2, lines 40-42) is supplied as a sample gas, an infrared light source 26, a plurality of bandpass filters 32 of the recited type (column 4, lines 23-31), and a plurality of detectors 30 (column 3, line 49 to column 4, line 45). At least two bandpass filters 32 are provided among the bandpass filters in the apparatus of Anderson *et al.* and at least one of the bandpass filters has its infrared transmission central wavenumbers set corresponding to one of the recited ranges (since $12.5\text{ }\mu\text{m}$, column 4, line 28, is equivalent to 800 cm^{-1}). Adachi *et al.* teaches a method of choosing the infrared transmission central wavenumbers (column 13, lines 11-16) for the purpose of avoiding interference among components (column 14, lines 40-54). In view of the improved calculation of components concentration as described by Adachi *et al.* (Fig. 10) it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Anderson *et al.* to set the infrared transmission central wavenumbers of the bandpass filters 32 such that a sufficient difference between corresponding peak values and valley

values is established while avoiding points at which an absorption is increased by interferential ingredients in accordance with the suggestion of Adachi *et al.* The specific infrared transmission central wavenumbers ranges are a choice within the ordinary skill in the art in view of the known spectra of the refrigerant components in isolation.

Response to Submission(s)

11. This application has been published as EP 1398618A2 on March 17, 2004 and again as US2004/0149912A1 on August 5, 2004. The applications to which priority is claimed were published as JP 2004-101416A on April 2, 2004 and as JP 2004-138453A on May 13, 2004.

Allowable Subject Matter

12. Claims 2-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: the specific equations, coefficients, and terms are not suggested.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sawada *et al.* (JP 64-73239 A) discloses a gas concentration measurement apparatus in which correction factors are determined.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ch


Constantine Hannaher
Primary Examiner